



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0511; Project Identifier AD-2020-01229-E]

RIN 2120-AA64

Airworthiness Directives; Williams International Co., L.L.C. Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Supplemental notice of proposed rulemaking (SNPRM).

SUMMARY: The FAA is revising a notice of proposed rulemaking (NPRM) that applied to certain Williams International Co., L.L.C. (Williams) FJ44-2A, FJ44-2C, FJ44-3A, and FJ44-3A-24 model turbofan engines. This action revises the NPRM by expanding the applicability, updating the estimated costs information, updating the compliance time, and adding an installation prohibition. This action also revises the NPRM by updating the service information references. The FAA is proposing this airworthiness directive (AD) to address the unsafe condition on these products. Since these actions would impose an additional burden over those in the NPRM, the agency is requesting comments on this SNPRM.

DATES: The FAA must receive comments on this SNPRM by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this SNPRM, contact Williams International, Product Support, 2000 Centerpoint Parkway, Pontiac, MI 48341; phone: (800) 859-3544; website: <http://www.williams-int.com/product-support>. You may view this service information at the FAA, Chicago ACO, 2300 East Devon Avenue, Des Plaines, IL 60018. For information on the availability of this material at the FAA, call (817) 222-5110.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0511; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this SNPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Kyle Bush, Aviation Safety Engineer, Chicago ACO, FAA, 2300 East Devon Avenue, Des Plaines, IL 60018; phone: (847) 294-7870; email: kyle.bush@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-0511; Project Identifier AD-2020-01229-E” at the beginning of your comments.

The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may again revise this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this proposed AD.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this SNPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this SNPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this SNPRM. Submissions containing CBI should be sent to Kyle Bush, Aviation Safety Engineer, Chicago ACO, FAA, 2300 East Devon Avenue, Des Plaines, IL 60018. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued an NPRM to amend 14 CFR part 39 by adding an AD that would apply to Williams FJ44-2A, FJ44-2C, FJ44-3A, and FJ44-3A-24 model turbofan engines. The NPRM published in the *Federal Register* on June 25, 2021 (86 FR 33579). The NPRM was prompted by a report of cracks in the high-pressure turbine (HPT) disk posts and failure of an HPT disk post, resulting in the contained fracture of an HPT disk post and blade. Williams initiated an investigation to understand the root cause of the cracks and to determine the necessary corrective action. Metallurgical evaluation showed cracking related to intergranular oxidation related to HPT disk post metal temperatures.

As a result of this investigation, Williams determined the root cause of this cracking was due to higher HPT disk post temperatures and a difference in manufacturing processes. Williams determined that these cracks have only occurred on HPT disks with part number (P/N) 67093 installed on FJ44-2A or FJ44-2C model turbofan engines. Williams subsequently published service information specifying procedures to remove the HPT disk, P/N 67093. In the NPRM, the FAA proposed to require removing the HPT disk, P/N 67093, from service before reaching its new life limit and replacing it with a part eligible for installation.

Actions Since the NPRM was Issued

Since the FAA issued the NPRM, Williams notified the FAA that revised service information was available. The revised service information, Williams International Service Bulletin (SB) WISB-72-1032, Revision 2, dated June 4, 2020, adds additional serial-numbered FJ44-2A, FJ44-2C, and FJ44-3A model turbofan engines to the effectivity and updates the compliance time for replacing the HPT disk. The FAA determined that the additional serial-numbered FJ44-2A, FJ44-2C, and FJ44-3A model turbofan engines are susceptible to the same unsafe condition. Therefore, the FAA revised the applicability of this proposed AD to include FJ44-2A, FJ44-2C, FJ44-3A, and FJ44-3A-24 model turbofan engines with an engine serial number identified in paragraph 1.A., Effectivity, of Williams International SB WISB-72-1032, Revision 2, dated June 4, 2020, with an installed HPT disk, P/N 67093. In addition, the FAA revised the estimated number of affected engines installed on airplanes of U.S. registry from 213 engines to 242 engines, updated the compliance time specified in Table 1 to Paragraph (g), and added an installation prohibition paragraph to this proposed AD. Finally, the FAA revised all references to the service information in this AD.

Comments

The FAA received a comment from one commenter on the NPRM, Williams. The following presents the comment received on the NPRM and the FAA's response to the comment.

Request that the NPRM Reflect Current Service Document Revisions

Williams requested that the NPRM be revised to reflect the specified procedures of the current service document revisions, Williams International SB WISB-72-1032, Revision 2, dated June 4, 2020, and Williams International SB WISB-72-1034, Revision 3, dated July 2, 2021.

The FAA agrees. The FAA has revised this proposed AD to include Williams International SB WISB-72-1032, Revision 2, dated June 4, 2020, and Williams International SB WISB-72-1034, Revision 3, dated July 2, 2021.

Other Differences Between this SNPRM and the NPRM

In this SNPRM, the FAA has replaced the term “life limit” with “defined life cycles,” where appropriate. In this SNPRM, the FAA has replaced all instances of “resulting in the release of an HPT blade” to “resulting in the contained fracture of an HPT disk post and blade.”

FAA’s Determination

The FAA is proposing this AD after determining the unsafe condition described previously is likely to exist or develop in other products of the same type design. Certain changes described above expand the scope of the NPRM. As a result, it is necessary to reopen the comment period to provide additional opportunity for the public to comment on this SNPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed Williams International SB WISB-72-1032, Revision 2, dated June 4, 2020. This service information specifies procedures for removing and replacing the HPT rotor assemblies that include HPT disk, P/N 67093. The service information also provides instructions for incorporating the latest HPT combustor/fuel slinger module on FJ44-2A and FJ44-2C model turbofan engines. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Other Related Service Information

The FAA reviewed Williams International SB WISB-72-1034, Revision 3, dated July 2, 2021. This service information describes procedures for re-identifying the HPT rotor assembly and HPT disk.

Proposed AD Requirements in this SNPRM

This proposed AD would require removing the HPT disk, P/N 67093, from service before reaching defined cycle limits and replacing it with a part eligible for installation.

Differences Between this SNPRM and the Service Information

The Accomplishment Instructions, paragraph 2.D., of Williams International SB WISB-72-1032, Revision 2, dated June 4, 2020, specifies procedures for replacing or

reworking the HPT combustor/fuel slinger module on FJ44-2A and FJ44-2C model turbofan engines, while this proposed AD would not mandate that action. The FAA has determined that replacement or rework of the HPT combustor/fuel slinger module is not necessary to resolve the unsafe condition in this proposed AD.

The Accomplishment Instructions, paragraphs 2.C. and E. and 3.C. and D., of Williams International SB WISB-72-1032, Revision 2, dated June 4, 2020, specify procedures for removing and replacing the HP turbine rotor assembly containing HPT disk, P/N 67093, whereas this proposed AD would mandate removing and replacing the HPT disk, P/N 67093. Although removing the HPT rotor assembly is a necessary step in the replacement of the HPT disk, this proposed AD only requires replacement of the HPT disk to resolve the unsafe condition addressed by this proposed AD.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 242 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Remove and replace the HPT disk	33 work-hours x \$85 per hour = \$2,805	\$16,694	\$19,499	\$4,718,758

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected operators.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs" describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress

charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

Williams International Co., L.L.C.: Docket No. FAA-2021-0511; Project Identifier AD-2020-01229-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Williams International Co., L.L.C. (Williams) FJ44-2A, FJ44-2C, FJ44-3A, and FJ44-3A-24 model turbofan engines with an engine serial number identified in paragraph 1.A., Effectivity, of Williams International Service Bulletin WISB-72-1032, Revision 2, dated June 4, 2020 (the SB), with an installed high-pressure turbine (HPT) disk, part number (P/N) 67093.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by a report of cracks in the HPT disk posts and failure of an HPT disk post, resulting in the contained fracture of an HPT disk post and blade. The FAA is issuing this AD to prevent cracking and failure of the HPT disk posts. The unsafe condition, if not addressed, could result in release of the HPT blade, damage to the engine, and damage to the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) For FJ44-2A and FJ44-2C model turbofan engines, within the compliance times specified in Table 1 to Paragraph (g) of this AD, remove the affected HPT disk from service and replace it with a part eligible for installation using paragraphs 2.C. and E., Accomplishment Instructions – FJ44-2A & FJ44-2C, of the SB.

(2) For FJ44-3A and FJ44-3A-24 model turbofan engines, within the compliance times specified in Table 1 to Paragraph (g) of this AD, remove the affected HPT disk

from service and replace it with a part eligible for installation using paragraphs 3.C. and D., of the SB.

Table 1 to Paragraph (g) – Compliance Time

HPT disk, P/N 67093, cycles since new (CSN) as of the effective date of this AD	Replace within HPT disk cycles after the effective date of this AD
0 to 999 CSN	620
1,000 to 1,999 CSN	530
2,000 to 2,999 CSN	245
3,000 or higher CSN	130

(h) Installation Prohibition

After the effective date of this AD, do not install onto any engine an HPT disk with P/N 67093.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Chicago ACO, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Kyle Bush, Aviation Safety Engineer, Chicago ACO, FAA, 2300 East Devon Avenue, Des Plaines, IL 60018; phone: (847) 294-7870; email: kyle.bush@faa.gov.

(2) For service information identified in this AD, contact Williams International, Product Support, 2000 Centerpoint Parkway, Pontiac, MI 48341; phone: (800) 859-3544; website: <http://www.williams-int.com/product-support>. You may view this referenced

service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

Issued on April 7, 2022.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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